Traffic Impact Assessment

Proposed Quail Ridge Country Club Redevelopment
Acton, Massachusetts
July 7, 2008
WDG Project No. 07-0907-1

Prepared For: Acorn Park Condominium Association
Mr. James Russell
5 Palmer Lane
Acton, Massachusetts 01720

Prepared By: Woodland Design Group, Inc.
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July 7, 2008

Mr. James Russell
Acorn Park Condominium Association
5 Palmer Lane
Acton, MA 01720

RE: Traffic Impact Assessment - Part II
Proposed Quail Ridge Country Club Redevelopment
Acton, Massachusetts
WDG Project No. 07-0907-1

Dear Mr. Russell:

Woodland Design Group, Inc, (WDG) has reviewed of potential access alternatives for proposed redevelopment of the Quail Ridge Country Club in Acton, Massachusetts. As initially proposed, access to the Quail Ridge development was to be provided via Skyline Drive, with additional access to be provided by new connecting roadways through the existing Acorn Park residential neighborhood, via Hazelnut Street and Palmer Lane. However, to address concerns of the Acorn Park residential neighborhood, the Acton Planning Board has requested that the proponent provides additional information for access alternatives for the development.

One alternative considered was to provide a new roadway connection through the Great Road Condominiums. However, it is our understanding that this alternative was rejected by the residents of the Great Road Condominium Association. A second alternative was to provide a single point of access via Skyline Drive, with emergency access only to be provided by gated access roadways connecting to the existing Acorn Park residential neighborhood, via Hazelnut Street and Palmer Lane. This report provides a supplemental review of the initially proposed access and the alternative Skyline Drive access with gated emergency access.

Our assessment is based on a review of the Traffic Impact Study for The Residences at Quail Ridge, Acton, Massachusetts (Dated March 2007) prepared by Conley Associates, and "The Residences at Quail Ridge, Senior Residence Special Permit, Acton, Massachusetts" (Dated October 18, 2007) prepared by Stamski and McNary, Inc. As part of this assessment, WDG conducted additional traffic counts within Acorn Park to quantify existing and projected traffic levels. WDG has also reviewed supplemental analysis of a single access via Skyline Drive alternative provided by Conley Associates as documented in their response to comments memorandum (Dated October 19, 2007).

As stated in our previous report (Dated September 20, 2007), the originally proposed access would result in significant traffic increases on the existing Acorn Park residential streets. These increases would exceed the Town of Acton's design standards for these narrow low volume neighborhood streets. The

frequent driveways and on-street parking further reduce the effective travel width of these roadways. The projected traffic increases will also adversely impact traffic safety and general quality of life for the Acorn Park residents on these roadways which were intended to carry less than 250 vehicles per day. Conversely, the supplemental analysis and traffic simulations provided by Conley Associates for the single access alternative (via Skyline Drive with gated emergency access on at least one of the Acorn Park residential streets) indicate that the entire Quail Ridge development can be accommodated with acceptable delays and vehicle queues for the critical Skyline Drive exiting movements. This letter documents our findings.

Project Description

The Quail Ridge Country Club currently consists of an 18 hole golf course with associated amenities including a swimming pool, tennis courts and family recreation center situated on a 148.9 ± acre site on the west side of Great Road in Acton, Massachusetts. Access to the site is currently provided by a single driveway off Skyline Drive, which in turn provides access to Route 2A (Great Road). The project site directly abuts the existing the Acorn Park residential neighborhood located just north of the project site. As currently proposed, the existing 18 golf course would converted to a 9 hole golf course to accommodate the construction of 174 age-restricted housing units, and a 51 seat restaurant. The project site in relation to the Acorn Park residential neighborhood is presented in Figure 1.

As initially proposed, two new access roads were to be constructed connecting the Quail Ridge site to the existing Acorn Park residential neighborhood, via Hazelnut Street and Palmer Lane. These narrow, 20 foot wide, residential streets in turn provide indirect access to Great Road via Acorn Park Drive. The Planning Board also required the project proponent to investigate additional access alternatives including providing a possible new connection through the Great Road Condominiums and to provide supplemental information regarding the single access alternative via Skyline Drive, with gated emergency access only, via Hazelnut Street and Palmer Lane.

Acorn Park Existing Traffic Volumes

To quantify existing traffic levels within Acorn Park, WDG conducted supplemental daily traffic counts on Hazelnut Street and Acorn Park Drive west of the commercial driveway in April, 2008. The traffic count data is presented in the Appendix of this report and summarized in Table 1. The Conley Associates data for Acorn Park Drive collected in February, 2007 is also provided in Table 1.

Table 1 Average Daily Traffic Volumes

	Average Daily Traffic Volumes (vehicles per day)		
Roadway	**Thursday**	**Friday**	**Average Weekday**
Acorn Park Drive west of Great Road[1]	1,490	1,535	1,515
Acorn Park Drive west of Commercial Driveway[2]	907	881	894
Hazelnut Street west of Acorn park Drive[2]	188	185	187

1) Based on Automatic Traffic Recorder (ATR) counts conducted in February 8, 2007 by Conley Associates
2) Based on ATR counts conducted in April, 2008 by Woodland Design Group, Inc.

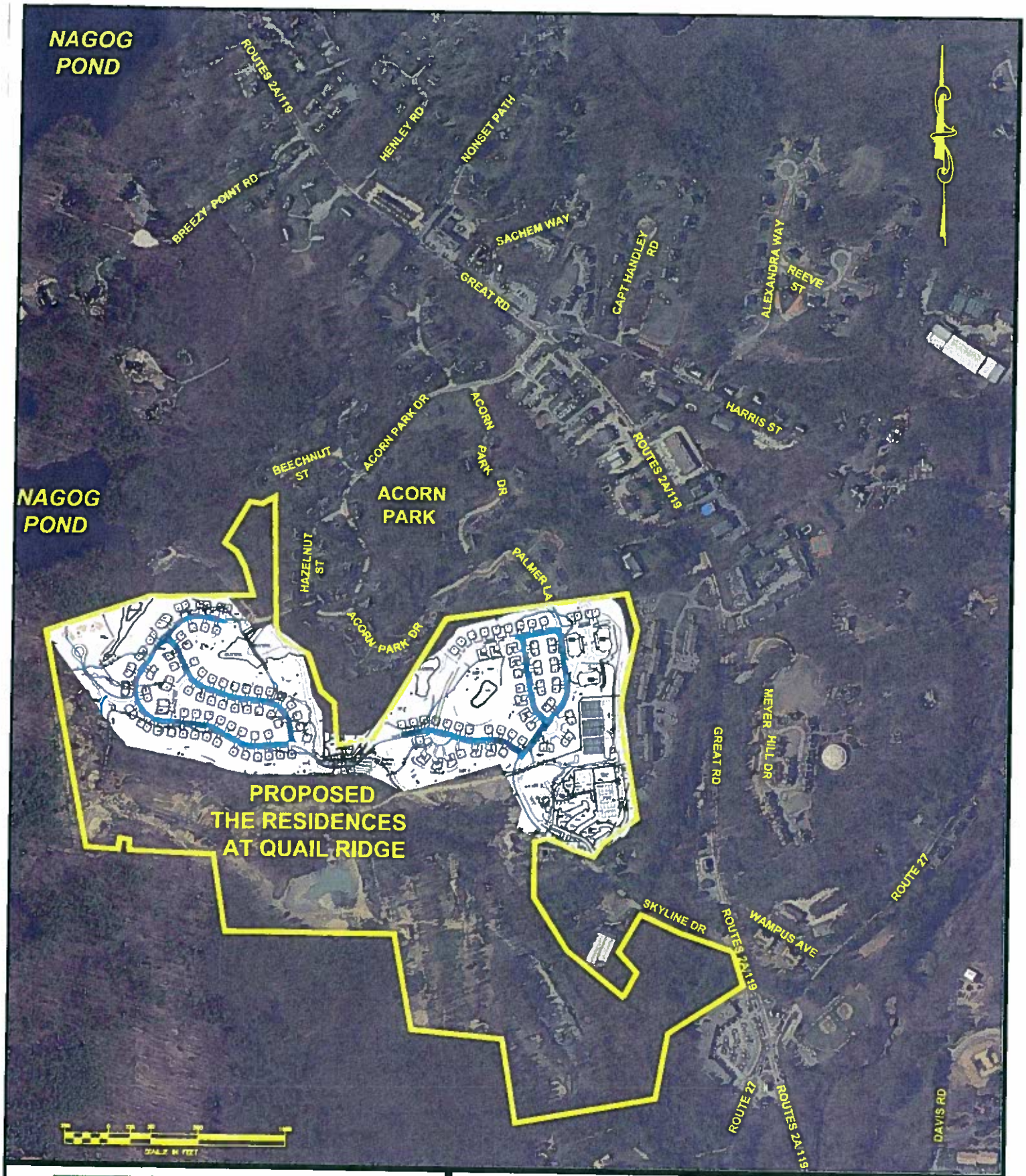

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FIGURE 1

SITE LOCATION MAP
THE RESIDENCES AT QUAIL RIDGE
ACTON, MASSACHUSETTS

As shown in Table 1, the Conley Associates traffic impact study indicates that Acorn Park Drive just west of Great Road carries an average total two-way weekday traffic volume of approximately 1,515 vehicles per day. The WDG traffic counts indicate that Acorn Park Drive just west of the existing commercial driveway at the entrance to Acorn Park carries an average total two-way weekday traffic flow of approximately 894 vehicles per day. This count location was collected to provide a more accurate measure of the neighborhood traffic generated by the existing 82 single family homes located with Acorn Park. Based on this count, the existing Acorn Park residents generate approximately 10.90 vehicle trips per day per household. This vehicle trip rate was then used to estimate traffic increases on other individual roadway links based on logical travel routes through the Acorn Park residential neighborhood. WDG also collected supplemental traffic counts on Hazelnut Street, which carries an average total two-way weekday traffic flow of approximately 187 vehicles per day.

Quail Ridge Site-Generated Traffic

As presented in the Traffic Impact Study prepared by Conley Associates, vehicle trip estimates for the proposed project were determined based on data presented in the Institute of Transportation Engineers' publication Trip Generation, 7th Edition. Vehicle trip estimates for the proposed age-restricted residential units were developed based on the average of the ITE trip generation rates for land use 230 (Residential Condominium/Town House) and ITE land use 251 (Senior Adult Housing – Detached). As discussed in the Conley Associates traffic impact study, the vehicle trip estimates for the existing 18 hole golf course and proposed replacement 9 hole golf course were developed based the ITE trip rates for land use 430 (Golf Course).

The Town of Acton had objected to the argument that replacing the existing 18 hole golf course with a 9 hole golf course would result in a linear reduction in vehicle trips to and from the site. To provide a conservative "worst case" assessment of future traffic operations, Conley Associates revised their trip generation methodology to eliminate the credit for reduction in vehicle trips associated with the smaller golf course. A summary of the revised site generated traffic is presented in Table 2.

Table 2 Revised Vehicle Trip Generation Summary

Time Period	Existing 18 Hole Golf Course[1]	Phase I Residential (97 Units)[2]	Phase II Residential (77 Units)[3]	Total Site Generated Traffic
Weekday Daily				
Enter	322	232	184	738
Exit	322	232	184	738
Total	644	464	368	1,476

[1]Based on ITE land Use 430 – Golf Course assuming 18 holes.
[2]Based on an average of the trip rates for ITE Land Use 230 and ITE Land Use 251 assuming 97 residential units.
[3]Based on an average of the trip rates for ITE Land Use 230 and ITE Land Use 251 assuming 77 residential units.

As shown in Table 2, the proposed Quail Ridge redevelopment is estimated to generate a total of 1,476 vehicle trips a typical weekday. In comparison, and according to the Conley Associates traffic impact study, Acorn Park Drive currently carries approximately 1,515 vehicles per day on a typical weekday. Consequently, if we assumed that all of the Quail Ridge redevelopment traffic access the site via Skyline Drive, it would still carry less traffic than Acorn Park Drive does today. This also assumes no reduction in vehicle trips associated with replacement of the 18 hole golf course with a 9 hole golf course.

Projected Traffic Increases at Acorn Park Assuming Full Access

The anticipated traffic increases associated with the proposed Quail Ridge redevelopment project were added to the existing traffic on Acorn Park roadways based on the vehicle trip generation estimates and general trip distribution patterns described in the Conley Associates Traffic Impact Study. For the purposes of this assessment, we have assumed 30 percent of the project trips would oriented to and from the north on Great Road (north Acorn Park Drive), and 5 percent would be oriented to and from the east on Harris Street, with the remaining 65 percent of the project trips oriented to and from the south on Great Road (south of Skyline Drive). Logical travel patterns were then used to assign the project trips for the existing Acorn Park residences and proposed Quail Ridge residences (Phase I and Phase II) assuming the shortest travel time distance. Consequently, we assumed that 35 percent of the Phase I residential traffic would use Palmer Lane and Acorn Park Drive travel to and from the north on Great Road and/or east on Harris Street. We also assumed that a portion the Acorn Park residents (5 homes on Palmer Lane and 18 homes on Acorn Park Drive located closest to Palmer Lane) would divert from their existing travel patterns to enter and exit the site via Palmer Lane for trips oriented to and from the south on Great Road. We assumed that all of the Phase II residential traffic would use Hazelnut Street to head ether north on Great Road or east on Harris Street. The existing and projected future traffic levels for key roadways within the Acorn Park neighborhood is presented in Table 3 and shown in Figure 2.

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FIGURE 2

ROADWAY DAILY TRAFFIC VOLUMES
THE RESIDENCES AT QUAIL RIDGE
ACTON, MASSACHUSETTS

Table 3 Projected Weekday Daily Traffic Increases

Roadway Segment	Acorn Park Drive South of Great Road	Acorn Park Drive South of Commercial Driveways	Acorn Park Drive North of Palmer Lane	Palmer Lane East of Acorn Park Drive	Hazelnut Stree West of Acorn Park Driv
Existing Traffic					
Enter	605	444	81	27	100
Exit	910	450	82	27	87
Total	1,515	894	163	54	187
Phase I Residential Project Trips (97 Units)					
Enter	81	81	81	81	0
Exit	81	81	81	81	0
Total	162	162	162	162	0
Phase II Residential Project Trips (77 Units)					
Enter	64	64	0	0	64
Exit	64	64	0	0	64
Total	128	168	0	0	128
Acorn Park Net Traffic Diversions					
Enter	-81	-81	-25	46	0
Exit	-82	-82	-25	46	0
Total	-163	-163	-50	92	0
Full Build Traffic Volumes					
Enter	669	508	137	154	164
Exit	973	513	138	154	151
Total	1,642	1,021	275	308	315
Percent Traffic Increases Due to Project					
Enter	11%	14%	69%	470%	64%
Exit	7%	14%	68%	470%	74%
Total	8%	14%	69%	470%	68%

As shown in Table 3, the proposed project would result in traffic increases as much as 470% relative to the existing traffic volumes on the Acorn Park neighborhood streets. The traffic increases associated with the proposed project will also exceed the intended maximum daily traffic flow of 250 vehicle trips per day for the low intensity local roadways including Hazelnut Street, Palmer Lane and portions of Acorn Park Drive. The roadway classifications for the low intensity local roadways (20 foot pavement width) and standard subdivisions roadways (24 foot pavement width) within the Acorn Park residential neighborhood are shown in Figure 3.

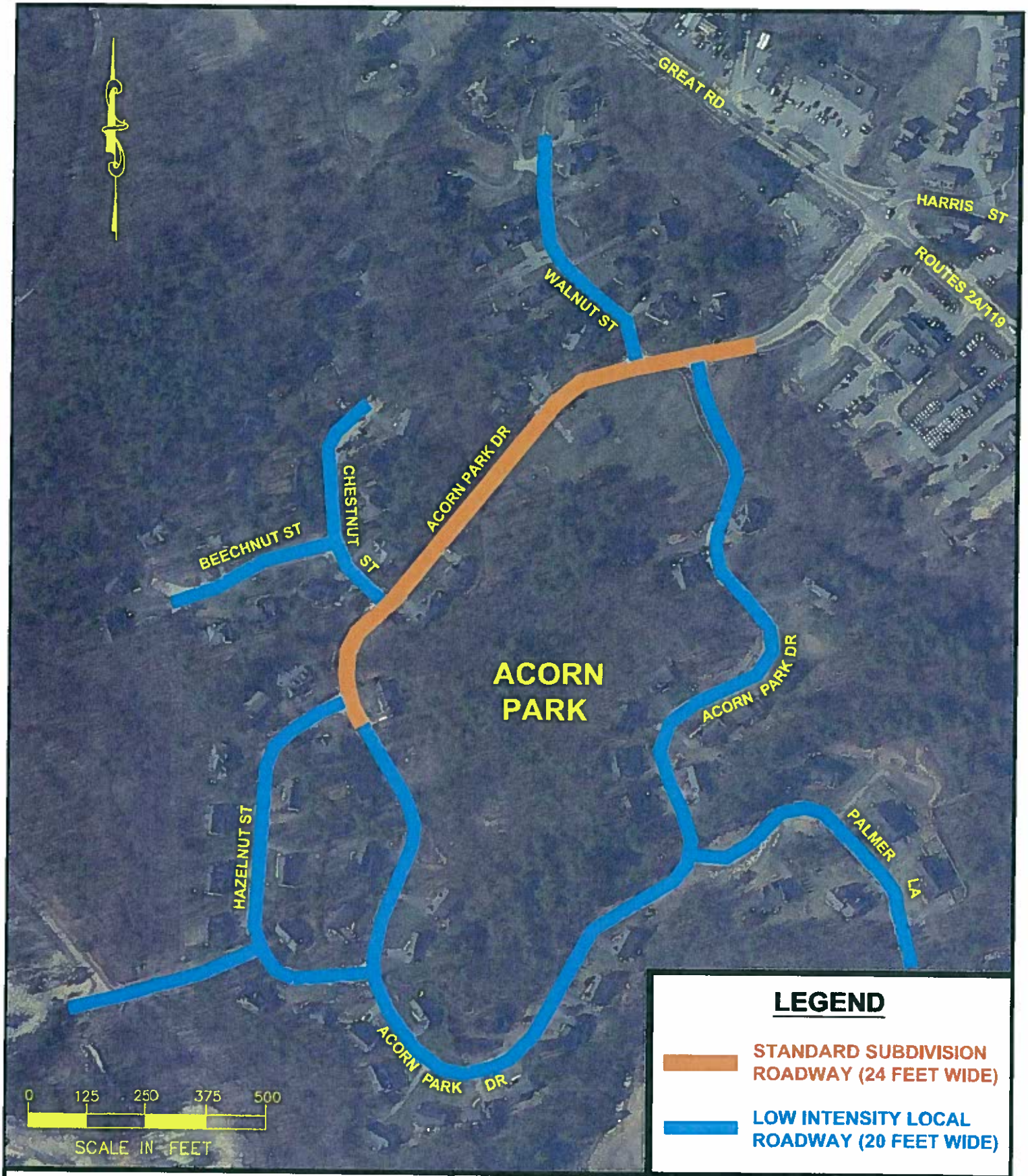

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FIGURE 3

ACORN PARK ROADWAY CLASSIFICATION
THE RESIDENCES AT QUAIL RIDGE
ACTON, MASSACHUSETTS

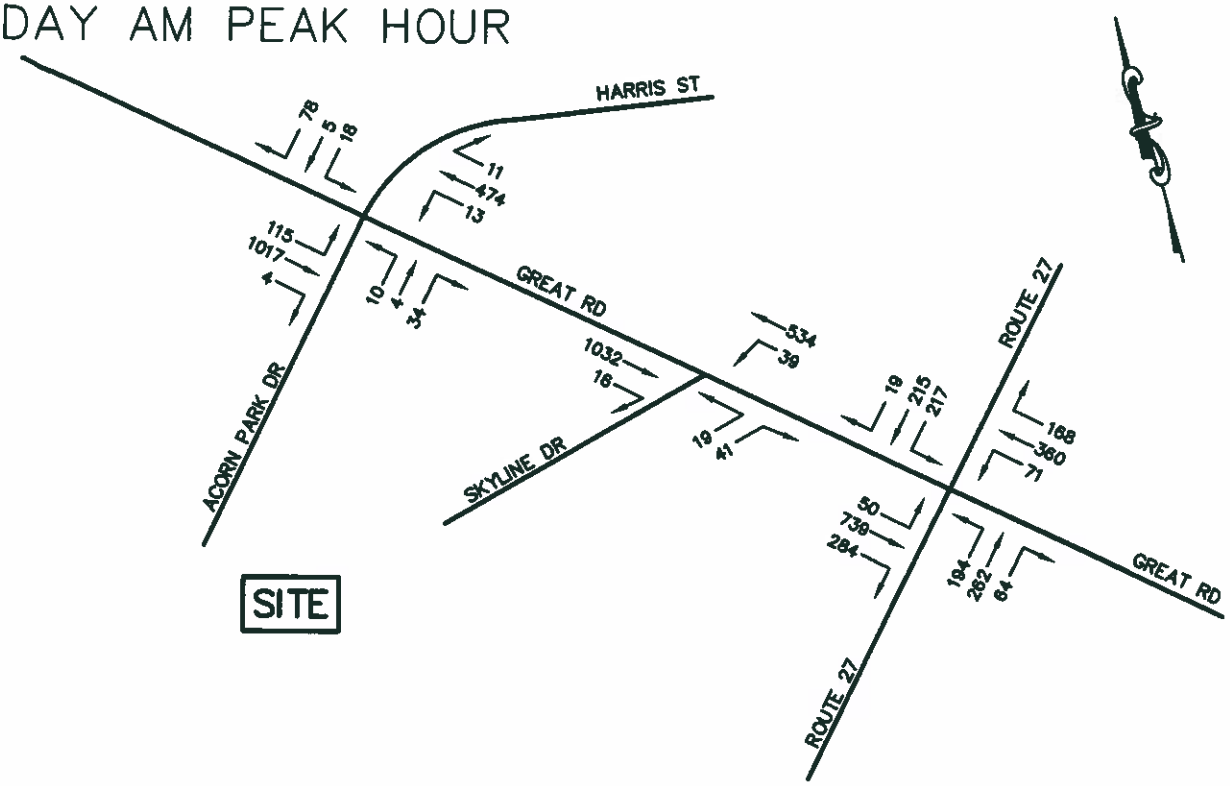
Traffic Simulation Results - Skyline Drive Access Only Alternative

The intersection capacity analysis results presented in the Conley Associates traffic study were based on methodologies presented in the Highway Capacity Manual, HCM 2000. The HCM 2000 methodology does not take into account the benefits of the nearby traffic signals at unsignalized intersections. However, the traffic software used by Conley Associates also produces a traffic simulation of the projected traffic operations that better accounts for the benefits of downstream traffic signals at the adjacent unsignalized intersections.

At WDG's request, Conley Associates provided the electronic files of the supplemental traffic simulations for the alternative site access assumptions documented in their response to comments letter (Dated October 19, 2007). The revised analysis assumes that all of the Quail Ridge traffic would use Skyline Drive to enter and exit the site, with no through connections for general traffic. The analysis also assumes the more conservative vehicle trip generation estimates and a revised traffic growth rate of 1.7 per year. The weekday morning and weekday evening commuter peak hour traffic volumes used in the Conley Associates traffic simulation model are presented in Figure 4.

The traffic simulation of the Skyline Drive only access alternative shows that acceptable traffic operations with minimal vehicle queues would be provided for the critical left-turn exiting movements from Skyline Drive during the weekday morning and evening commuter peak hours. This is due in part to the existing traffic signal at the intersection of Great Road and Route 27, located approximately 600 feet south of the Skyline Drive intersection which creates gaps in the traffic flow on Great Road facilitating exiting movement from Skyline Drive. The Skyline Drive exiting traffic does not have to compete for the available gaps in traffic with an additional street across the intersection, as is the case at the intersection of Great Road and Acorn Park Drive/Harris Street. As stated previously, even if all of the Quail Ridge traffic used Skyline Drive to access the site, it would also carry less traffic than Acorn Park Drive currently carries, providing a better overall balance of residential traffic flows attempting to access Great Road.

WEEKDAY AM PEAK HOUR



WEEKDAY PM PEAK HOUR

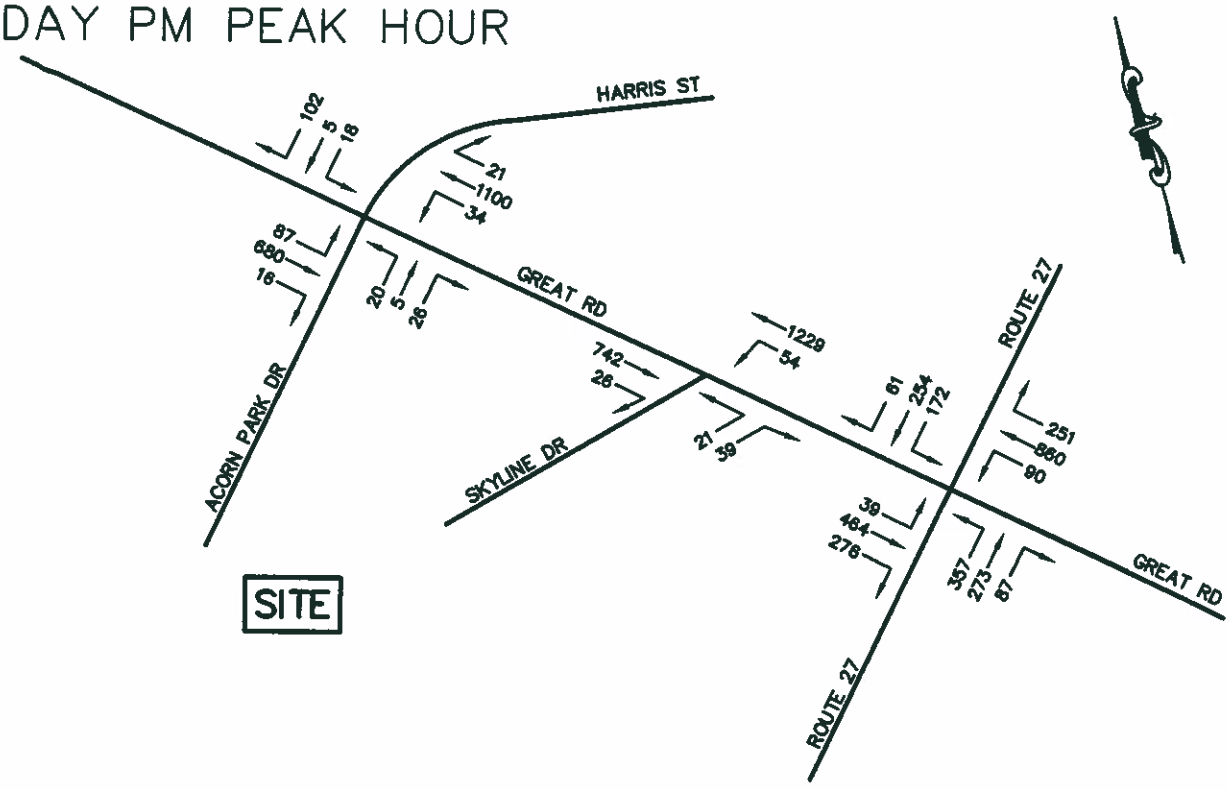


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FIGURE 4

2012 BUILD PEAK HOUR
TRAFFIC VOLUMES
SKYLINE DRIVE ACCESS ONLY
THE RESIDENCES AT QUAIL RIDGE
ACTON, MASSACHUSETTS

Gated Emergency Access Operations

One alternative to providing full vehicle access to the Quail Ridge development through the existing Acorn Park residential neighborhood would be to provide gated emergency access at the proposed secondary access roadways. It is out understanding that questions had been raised regarding the operation of the gated access particularly during winter months. The Town of Londonderry, New Hampshire has developed a standard gated emergency access to address this issue. The Town of Londonderry standard requires that the gate be equipped with remote optical sensor (Opticom Device) that triggers the opening of the gate after receiving a infrared signal from the transponder device in the approaching emergency vehicle. The opticom gate works in the same manner that emergency vehicle preemption is provided at traffic signals. The opticom gate also provides an override key which can open the gate manually. The gate is also equipped with an infrared photo safety beam (photoelectric eye) and magnetic vehicle loop detectors placed on either side of the gate to prevent the gate from closing while a vehicle is passing through the gate. The gates are design with sufficient clearance to opening even after a foot of initial snowfall.

It is our understanding that all of the roadways within the Quail Ridge development are private and as such will be the sole responsible of the proponent and future resident association to maintain and plow the roadways. The Opticom gated emergency access can provide practical, all weather, solution to gated access that minimizes potential delays for emergency vehicles. A construction detail and photos of two (2) working examples of the Opticom gated emergency access used in Londonderry, New Hampshire are provided in the Appendix of this report.

Conclusions

WDG has reviewed of the potential traffic impacts associated with the access alternatives for the proposed redevelopment of the Quail Ridge Country Club on the abutting Acorn Park residential neighborhood in Acton, Massachusetts.

The full access alternative presented in the initial Conley Associates Traffic Impact Study would result in substantial traffic increases on existing residential streets within Acorn Park which would adversely impact traffic safety and quality of life for the existing Acorn Park residents. The proposed project would result in daily traffic increases as high as 470 % relative to the existing traffic levels on these streets and would exceed the Town of Acton's intended design capacity of 250 vehicle trips per day for low intensity local streets on Hazelnut Street, Palmer Lane and portions of Acorn Park Drive.

The supplemental analysis and traffic simulations provided by Conley Associates, indicate that Skyline Drive can accommodate all of the anticipated traffic increases associates with the proposed Quail Ridge Redevelopment project. This is due in part to the existing traffic signal at the intersection of Great Road and Route 27, located approximately 600 feet south of the Skyline Drive intersection. This existing traffic signal creates gaps in the traffic flow on Great Road facilitating exiting movement from Skyline Drive. Skyline Drive also benefits from the fact that there no street located directly across from Skyline Drive competing for acceptable gaps in the mainline traffic, as is the case at the intersection of Great Road and Acorn Park Drive/Harris Street.

The Skyline Drive only access alternative would significantly reduce the Quail Ridge traffic impacts to the existing Acorn Park residential neighborhood. This alternative would result in a better

balance of projected traffic flows on Acorn Park Drive and Skyline Drive than the previously proposed unrestricted access alternative. Based on the traffic counts presented in Conley Associates initial traffic impact study, Acorn Park Drive currently carries 1,515 vehicles per day just southwest of Great Road versus a projected maximum of 1,475 vehicles per day on Skyline Drive assuming all of the Quail Ridge traffic accessed the site from Skyline Drive.

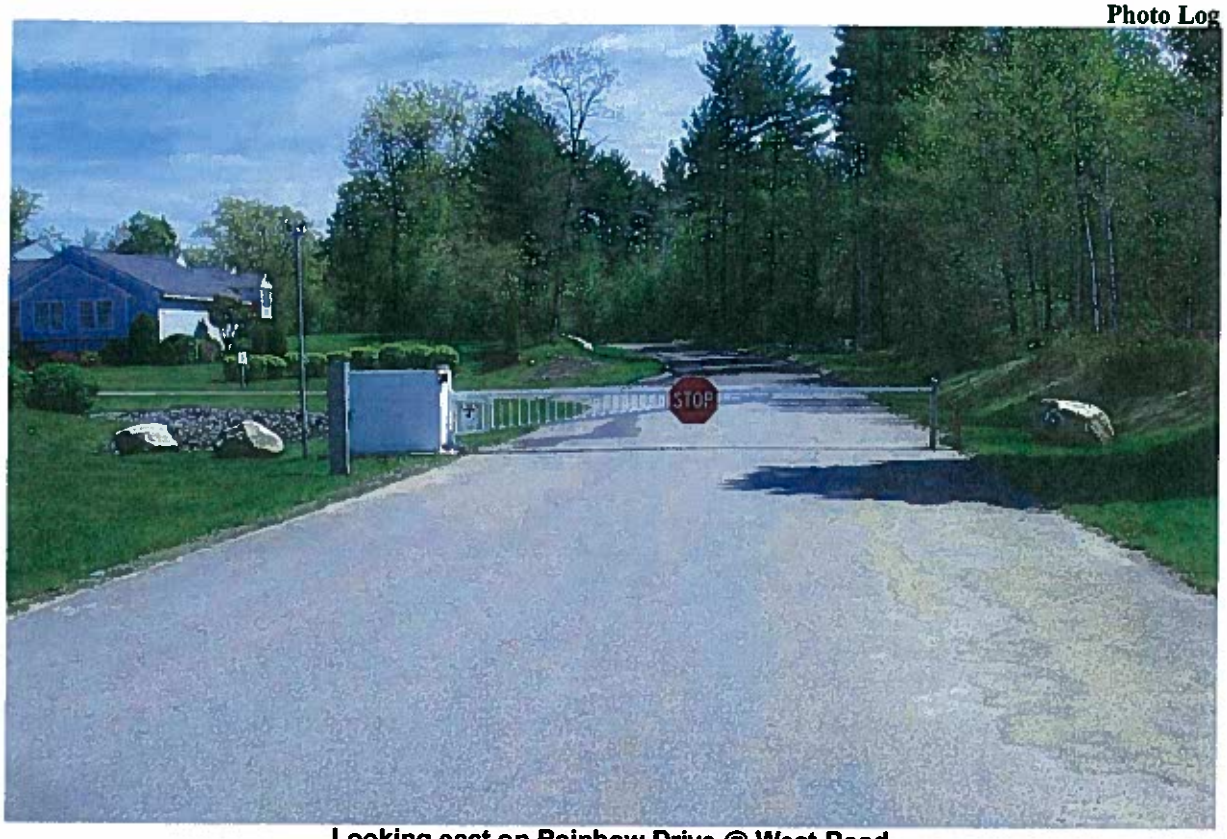
We trust that the information will prove useful to the Town of Acton in their review of this project. We would be happy to meet with the Town of Acton to review our findings. If you have any questions or require further information, please feel free to call.

Sincerely,

Robert I. Woodland, P.E.
President

Appendix

Rainbow Drive @ West Road
Londonderry, New Hampshire
Photo Log



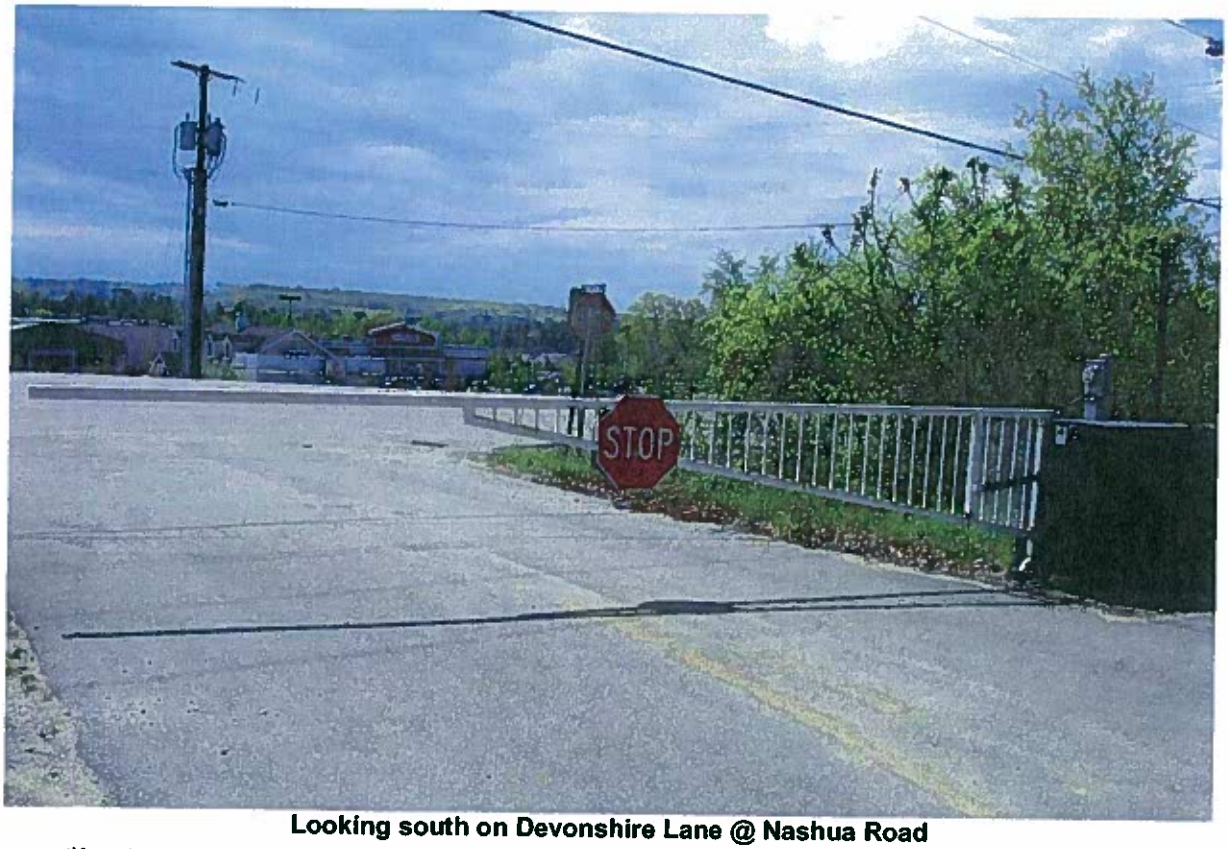
Looking east on Rainbow Drive @ West Road

Looking west on Rainbow Drive @ West Road

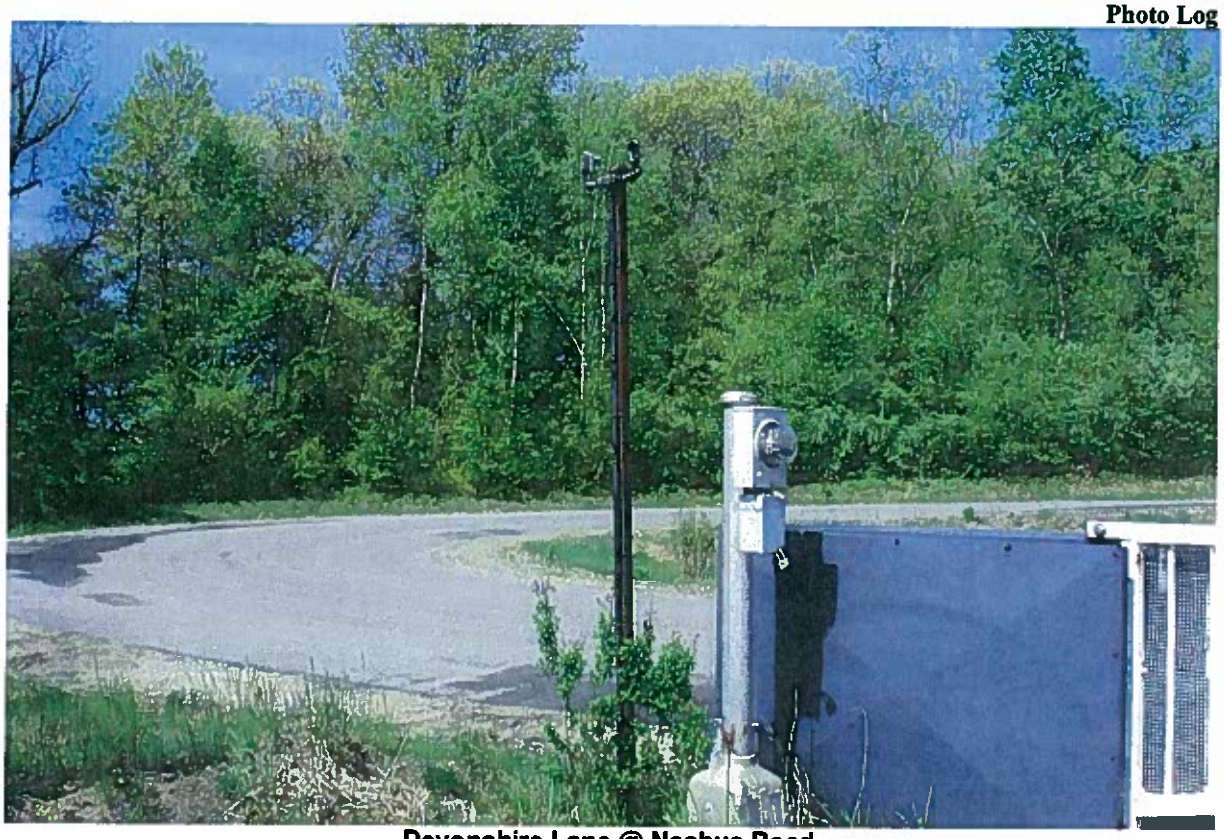
Rainbow Drive @ West Road

Rainbow Drive @ West Road

Looking north on Devonshire Lane @ Nashua Road

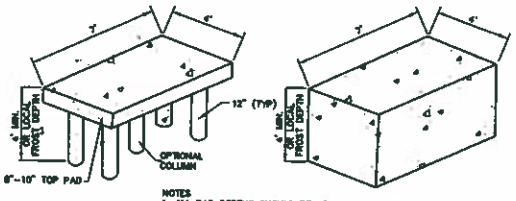


Looking south on Devonshire Lane @ Nashua Road



Devonshire Lane @ Nashua Road

Devonshire Lane @ Nashua Road

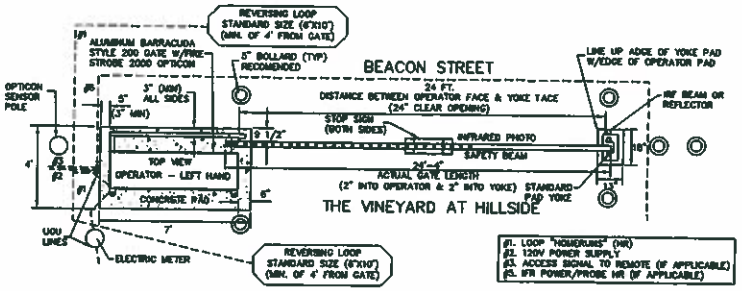


NOTES
1. ALL PAD DEPTHS SHOULD BE BELOW LOCAL FROST LINE.
2. PADS SHOULD BE FLAT AND LEVEL

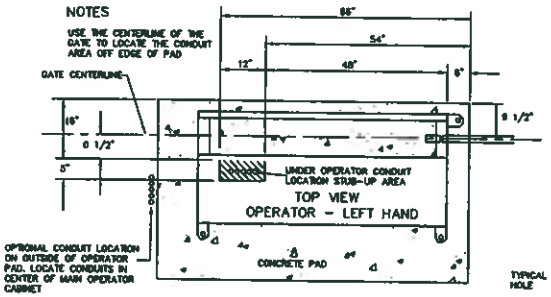
OPTION #1
(4) OR (5) 12" AUGURED HOLES, RE-BAR, AND AN 8"-10" TOP PAD

OPTION #1
FULLDUGOUT CONCRETE PAD WITH RE-BAR WHERE APPLICABLE

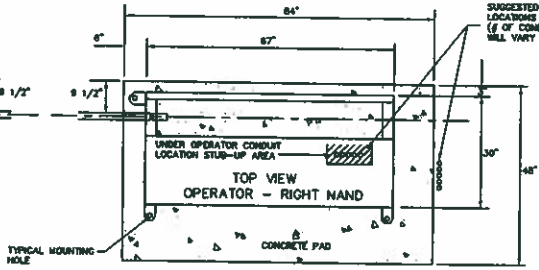
PAD DETAIL
NOT TO SCALE



NOTES
USE THE CENTERLINE OF THE GATE TO LOCATE THE CONDUIT AREA OFF EDGE OF PAD

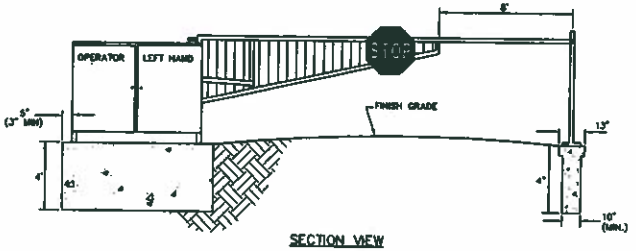


POSSIBLE CONDUITS
1. 120 VAC, MIN. 15 AMP CIRCUIT
2. REVERSING / SAFETY LOOPS
3. OFFICE COMMUNICATION
4. IFR BEAM POWER
5. OPTIONAL SPARES



NOTES
1. PAD DIMENSIONS CAN VARY PER SITE.
2. LEAVE AT LEAST 3" BETWEEN ANCHOR AND EDGE OF PAD.
3. ALL PADS SHOULD BE POURED LEVEL AND BELOW LOCAL FROST LINE DEPTH
4. STUB CONDUITS UNDER OPERATOR WHEN POSSIBLE.
5. OPTIONAL PAD AREA IS NOT REQUIRED.

OPTICON GATE PLAN VIEW DETAIL
NOT TO SCALE



SECTION VIEW

NOTE:
1. PROVIDE SHOP DRAWINGS OF OPTICON GATE, CONCRETE PAD, AND ACCESSORIES TO DETERMINE CONFORMANCE WITH THE TOWN OF LONDONDERRY STANDARDS OF DESIGN. CONCRETE PADS FOR CONTROL PANEL, YOKE, OPTICON POLE AND ELECTRIC METER TO BE DESIGNED BY STRUCTURAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE.

2. MOUNT ELECTRIC METER AND OPTICON POLE ON MIN. 5' DEPTH, MIN. 16" DIA. SONET TUBE. REFER TO MANUFACTURER SPECS. FOR BOLT SIZE AND LOCATION AND WIRING REQUIREMENTS.

3. OPTICON SENSOR UNITS FOR BOTH DIRECTIONS LOCATED 10 FT. ABOVE ROAD ELEVATION.

4. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ALL UNDERGROUND ELECTRICAL WIRING, LOOPING, AND COMPONENTS THAT ARE REQUIRED FOR THE OPERATION OF THE OPTICON GATE. ALL CONDUIT AND WIRING SHALL MEET THE MANUFACTURERS SPECS. AND BE IN ACCORDANCE WITH ANY AND ALL LOCAL, STATE AND FEDERAL REQUIREMENTS.

5. EMERGENCY ACCESS GATE TO BE BARRACUDA STYLE 200 (ALUMINUM) GATE WITH FIRE STROBE 2000 OPTICON.

LOCAL REPRESENTATIVE
DON LAPERLE
SECURITY GATES
ROCHESTER, NEW HAMPSHIRE
TEL: (603) 335-5766

OPTICON GATE DETAIL
NOT TO SCALE

REVISIONS	
DATE	DESCRIPTION

OPTICON GATE DETAIL PREPARED FOR:

ACORN PARK

ACTON, MASSACHUSETTS

PREPARED FOR:

SCALE: AS SHOWN

DATE: MAY 16, 2008

PROJECT NO. 07-0907-1

Woodland Design Group Inc.

SHEET NO. 1 OF 1

Acorn Park Drive
west of Route 2A/119
City, State: Acton, MA
Client: Woodland Design/R. Woodland

81558Avolume
Site Code: TBA

Start Time	WB A.M.		WB P.M.		EB A.M.		EB P.M.		Combined A.M.		Combined P.M.		17-Apr-08 Thu
12:00	0		7		0		5		0		12		
12:15	0		9		0		3		0		12		
12:30	0		6		1		6		1		12		
12:45	0	0	5	27	0	1	9	23	0	1	14	50	
01:00	0		7		0		12		0		19		
01:15	0		6		0		7		0		13		
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08:30	6		8		6		2		12		10		
08:45	7	20	5	30	16	46	4	16	23	66	9	46	
09:00	3		4		7		3		10		7		
09:15	4		2		4		0		8		2		
09:30	0		4		7		0		7		4		
09:45	3	10	3	13	6	24	0	3	9	34	3	16	
10:00	7		5		8		2		15		7		
10:15	4		5		6		1		10		6		
10:30	4		4		6		1		10		5		
10:45	2	17	2	16	4	24	0	4	6	41	2	20	
11:00	5		1		2		0		7		1		
11:15	3		0		5		0		8		0		
11:30	2		4		3		2		5		6		
11:45	7	17	1	6	1	11	1	3	8	28	2	9	
Total	87		369		196		255		283		624		
Percent	30.7%		59.1%		69.3%		40.9%						
Day Total		456				451				907			
Peak	08:00		05:45		06:30		05:00		06:30		05:45		
Vol.	20		67		56		42		68		108		
P.H.F.	0.714		0.838		0.824		0.750		0.895		0.844		

Acorn Park Drive
west of Route 2A/119
City, State: Acton, MA
Client: Woodland Design/R. Woodland

81558Avolume
Site Code: TBA

Start Time	WB A.M.		WB P.M.		EB A.M.		EB P.M.		Combined A.M.		Combined P.M.		18-Apr-08 Fri
12:00	0		4		1		4		1		8		
12:15	0		2		0		3		0		5		
12:30	0		4		0		2		0		6		
12:45	0	0	4	14	1	2	3	12	1	2	7	26	
01:00	1		4		0		5		1		9		
01:15	1		2		0		6		1		8		
01:30	0		3		0		2		0		5		
01:45	0	2	10	19	0	0	5	18	0	2	15	37	
02:00	0		5		0		6		0		11		
02:15	0		6		0		4		0		10		
02:30	0		10		0		7		0		17		
02:45	0	0	7	28	0	0	6	23	0	0	13	51	
03:00	0		8		0		7		0		15		
03:15	0		10		0		8		0		18		
03:30	0		8		0		6		0		14		
03:45	0	0	17	43	0	0	9	30	0	0	26	73	
04:00	1		12		1		10		2		22		
04:15	0		8		0		15		0		23		
04:30	0		10		0		5		0		15		
04:45	0	1	12	42	1	2	13	43	1	3	25	85	
05:00	0		11		0		6		0		17		
05:15	0		14		0		6		0		20		
05:30	1		10		3		8		4		18		
05:45	0	1	14	49	2	5	8	28	2	6	22	77	
06:00	0		18		2		8		2		26		
06:15	0		15		2		6		2		21		
06:30	4		11		7		8		11		19		
06:45	5	9	12	56	12	23	7	29	17	32	19	85	
07:00	3		6		20		17		23		23		
07:15	3		9		15		4		18		13		
07:30	4		9		11		5		15		14		
07:45	4	14	9	33	5	51	3	29	9	65	12	62	
08:00	1		10		16		8		17		18		
08:15	3		8		11		6		14		14		
08:30	3		4		5		7		8		11		
08:45	2	9	3	25	9	41	2	23	11	50	5	48	
09:00	4		10		8		7		12		17		
09:15	2		6		4		4		6		10		
09:30	3		5		3		4		6		9		
09:45	4	13	8	29	6	21	1	16	10	34	9	45	
10:00	1		2		4		1		5		3		
10:15	1		5		8		3		9		8		
10:30	4		4		2		3		6		7		
10:45	1	7	2	13	4	18	1	8	5	25	3	21	
11:00	5		1		5		1		10		2		
11:15	4		3		3		0		7		3		
11:30	4		4		1		5		5		9		
11:45	7	20	2	10	6	15	1	7	13	35	3	17	
Total	76		361		178		266		254		627		
Percent	29.9%		57.6%		70.1%		42.4%						
Day Total		437				444				881			
Peak	11:00		05:45		06:45		04:00		06:45		05:45		
Vol.	20		58		58		43		73		88		
P.H.F.	0.714		0.806		0.725		0.717		0.793		0.846		

[redacted]9
[redacted]A
[redacted]sign/R. Woodland

81558Avolume
Site Code: TBA

WB P.M.			WB A.M.		EB P.M.		EB A.M.		Combined P.M.		19-Apr-08 Sat
	9		1		5		7		14		
	7		1		4		1		11		
	4		2		5		2		9		
7	10	30	0	4	7	21	1	11	17	51	
	5		0		7		0		12		
	6		0		9		0		15		
	4		1		3		1		7		
0	6	21	0	1	9	28	0	1	15	49	
	12		0		8		1		20		
	7		1		8		1		15		
	9		0		12		0		21		
1	7	35	0	1	8	36	0	2	15	71	
	8		0		1		0		9		
	5		0		7		0		12		
	8		0		7		0		15		
0	7	28	0	0	6	21	0	0	13	49	
	7		0		7		1		14		
	8		1		13		1		21		
	4		0		6		0		10		
1	7	26	0	1	8	34	0	2	15	60	
	10		0		3		0		13		
	12		0		10		1		22		
	5		2		7		2		12		
1	9	36	0	2	2	22	0	3	11	58	
	8		0		11		1		19		
	4		0		3		0		7		
	5		0		4		0		9		
1	10	27	2	2	8	26	2	3	18	53	
	2		2		4		4		6		
	8		4		6		7		14		
	10		2		4		4		14		
8	5	25	3	11	7	21	4	19	12	46	
	5		8		1		10		6		
	1		4		5		6		6		
	8		2		2		3		10		
8	5	19	11	25	3	11	14	33	8	30	
	5		9		6		12		11		
	7		7		1		13		8		
	4		6		3		12		7		
17	3	19	6	28	1	11	8	45	4	30	
	4		8		2		13		6		
	2		6		4		12		6		
	8		9		3		13		11		
22	4	18	6	29	4	13	13	51	8	31	
	1		9		1		11		2		
	0		4		0		8		0		
	2		7		1		15		3		
18	4	7	13	33	1	3	17	51	5	10	
	291		137		247		221		538		
	54.1%		62.0%		45.9%						
375				384				759			
	05:00		08:45		01:45		08:45		01:45		
	36		33		37		51		71		
	0.750		0.750		0.771		0.911		0.845		

Hazelnut Street
west of Acorn Park Drive
City, State: Acton, MA
Client: Woodland Design/R. Woodland

81558D volume
Site Code: TBA

Start Time	WB A.M.		WB P.M.		EB A.M.		EB P.M.		Combined A.M.		Combined P.M.		17-Apr-08 Thu
12:00	0		1		0		1		0		2		
12:15	0		1		0		0		0		1		
12:30	0		1		1		1		1		2		
12:45	0	0	0	3	0	1	4	6	0	1	4	9	
01:00	0		1		0		4		0		5		
01:15	0		3		0		2		0		5		
01:30	0		3		1		0		1		3		
01:45	0	0	0	7	0	1	0	6	0	1	0	13	
02:00	0		1		0		1		0		2		
02:15	0		4		0		1		0		5		
02:30	0		3		0		2		0		5		
02:45	0	0	3	11	0	0	1	5	0	0	4	16	
03:00	0		1		0		0		0		1		
03:15	0		1		0		1		0		2		
03:30	0		2		0		3		0		5		
03:45	0	0	1	5	0	0	2	6	0	0	3	11	
04:00	1		2		0		0		1		2		
04:15	0		1		0		1		0		2		
04:30	0		1		0		2		0		3		
04:45	0	1	1	5	0	0	2	5	0	1	3	10	
05:00	0		1		0		1		0		2		
05:15	0		3		0		2		0		5		
05:30	0		1		0		1		0		2		
05:45	0	0	2	7	0	0	0	4	0	0	2	11	
06:00	0		5		0		1		0		6		
06:15	0		3		2		3		2		6		
06:30	1		4		2		3		3		7		
06:45	0	1	2	14	3	7	0	7	3	8	2	21	
07:00	1		1		1		4		2		5		
07:15	0		4		2		0		2		4		
07:30	1		4		3		3		4		7		
07:45	1	3	3	12	2	8	1	8	3	11	4	20	
08:00	1		1		3		1		4		2		
08:15	1		1		1		0		2		1		
08:30	2		2		1		0		3		2		
08:45	2	6	2	6	1	6	1	2	3	12	3	8	
09:00	1		0		1		0		2		0		
09:15	1		1		0		0		1		1		
09:30	0		2		2		0		2		2		
09:45	0	2	1	4	2	5	0	0	2	7	1	4	
10:00	0		0		0		1		0		1		
10:15	2		2		2		0		4		2		
10:30	1		2		1		1		2		3		
10:45	0	3	0	4	1	4	0	2	1	7	0	6	
11:00	2		0		1		0		3		0		
11:15	0		0		2		1		2		1		
11:30	2		1		1		0		3		1		
11:45	1	5	0	1	0	4	0	1	1	9	0	2	
Total	21		79		36		52		57		131		
Percent	36.8%		60.3%		63.2%		39.7%						
Day Total		100				88				188			
Peak	08:00		05:45		07:15		00:30		07:15		05:45		
Vol.	6		14		10		11		13		21		
P.H.F.	0.750		0.700		0.833		0.688		0.813		0.750		

Hazelnut Street
west of Acorn Park Drive
City, State: Acton, MA
Client: Woodland Design/R. Woodland

81558D volume
Site Code: TBA

Start Time	WB A.M.		WB P.M.		EB A.M.		EB P.M.		Combined A.M.		Combined P.M.		18-Apr-08 Fri
12:00	0		0		0		2		0		2		
12:15	0		0		0		0		0		0		
12:30	0		2		0		1		0		3		
12:45	0	0	1	3	0	0	0	3	0	0	1	6	
01:00	0		1		0		1		0		2		
01:15	0		1		0		1		0		2		
01:30	0		0		0		0		0		0		
01:45	0	0	1	3	0	0	1	3	0	0	2	6	
02:00	0		0		0		2		0		2		
02:15	0		3		0		1		0		4		
02:30	0		0		0		0		0		0		
02:45	0	0	2	5	0	0	0	3	0	0	2	8	
03:00	0		1		0		1		0		2		
03:15	0		2		0		1		0		3		
03:30	0		4		0		0		0		4		
03:45	0	0	1	8	0	0	3	5	0	0	4	13	
04:00	1		4		0		3		1		7		
04:15	0		6		0		2		0		8		
04:30	0		1		0		4		0		5		
04:45	0	1	2	13	0	0	0	9	0	1	2	22	
05:00	0		1		0		1		0		2		
05:15	0		5		0		0		0		5		
05:30	0		2		1		1		1		3		
05:45	0	0	1	9	0	1	1	3	0	1	2	12	
06:00	0		5		0		0		0		5		
06:15	0		3		0		1		0		4		
06:30	2		1		4		3		6		4		
06:45	0	2	2	11	0	4	0	4	0	6	2	15	
07:00	0		0		3		5		3		5		
07:15	1		1		2		1		3		2		
07:30	1		2		2		3		3		5		
07:45	2	4	1	4	2	9	1	10	4	13	2	14	
08:00	0		4		2		0		2		4		
08:15	1		2		1		0		2		2		
08:30	0		2		0		2		0		4		
08:45	1	2	1	9	2	5	1	3	3	7	2	12	
09:00	1		2		2		0		3		2		
09:15	0		0		4		1		4		1		
09:30	2		1		0		0		2		1		
09:45	0	3	3	6	2	8	2	3	2	11	5	9	
10:00	2		0		2		0		4		0		
10:15	0		0		1		0		1		0		
10:30	3		1		0		0		3		1		
10:45	2	7	0	1	1	4	0	0	3	11	0	1	
11:00	3		0		1		0		4		0		
11:15	1		0		0		3		1		3		
11:30	1		1		0		2		1		3		
11:45	2	7	1	2	2	3	0	5	4	10	1	7	
Total	26		74		34		51		60		125		
Percent	43.3%		59.2%		56.7%		40.8%						
Day Total		100				85				185			
Peak	10:30		03:30		06:30		03:45		07:00		03:45		
Vol.	9		15		9		12		13		24		
P.H.F.	0.750		0.625		0.563		0.750		0.813		0.750		

Hazelnut Street
west of Acorn Park Drive
City, State: Acton, MA
Client: Woodland Design/R. Woodland

81558D volume
Site Code: TBA

Start Time	WB A.M.		WB P.M.		EB A.M.		EB P.M.		Combined A.M.		Combined P.M.		19-Apr-08 Sat
12:00	1		5		0		1		1		6		
12:15	0		2		0		2		0		4		
12:30	0		2		0		1		0		3		
12:45	0	1	1	10	0	0	0	4	0	1	1	14	
01:00	0		1		0		3		0		4		
01:15	0		1		0		2		0		3		
01:30	0		2		1		3		1		5		
01:45	0	0	0	4	0	1	0	8	0	1	0	12	
02:00	0		1		1		0		1		1		
02:15	0		0		0		2		0		2		
02:30	0		2		0		3		0		5		
02:45	0	0	2	5	0	1	1	6	0	1	3	11	
03:00	0		2		0		0		0		2		
03:15	0		1		0		1		0		2		
03:30	0		1		0		2		0		3		
03:45	0	0	0	4	0	0	1	4	0	0	1	8	
04:00	1		2		0		3		1		5		
04:15	0		2		0		0		0		2		
04:30	0		2		0		1		0		3		
04:45	0	1	0	6	0	0	1	5	0	1	1	11	
05:00	0		2		0		3		0		5		
05:15	0		3		0		3		0		6		
05:30	0		2		0		1		0		3		
05:45	0	0	2	9	0	0	0	7	0	0	2	16	
06:00	0		0		0		1		0		1		
06:15	0		2		0		2		0		4		
06:30	0		2		0		2		0		4		
06:45	0	0	4	8	1	1	3	8	1	1	7	16	
07:00	0		0		0		1		0		1		
07:15	2		3		0		2		2		5		
07:30	0		3		1		0		1		3		
07:45	0	2	1	7	1	2	1	4	1	4	2	11	
08:00	0		1		4		1		4		2		
08:15	1		0		0		2		1		2		
08:30	2		3		0		0		2		3		
08:45	1	4	0	4	2	6	2	5	3	10	2	9	
09:00	0		0		1		0		1		0		
09:15	0		6		1		1		1		7		
09:30	3		0		1		0		4		0		
09:45	0	3	1	7	1	4	1	2	1	7	2	9	
10:00	1		0		3		0		4		0		
10:15	2		3		0		0		2		3		
10:30	1		1		4		0		5		1		
10:45	1	5	1	5	1	8	2	2	2	13	3	7	
11:00	0		1		1		1		1		2		
11:15	2		0		0		0		2		0		
11:30	1		0		3		1		4		1		
11:45	1	4	1	2	1	5	0	2	2	9	1	4	
Total	20		71		28		57		48		128		
Percent	41.7%		55.5%		58.3%		44.5%						
Day Total		91				85				176			
Peak	09:30		12:00		09:45		00:45		10:00		06:30		
Vol.	6		10		8		8		13		17		
P.H.F.	0.500		0.500		0.500		0.667		0.650		0.607		